

**NASA Space Shuttle Program (SSP)  
Mission Management Team (MMT) STS-114  
Minutes of Meeting  
August 2, 2005**

The STS-114 Flight Day 8 (FD8) MMT meeting, chaired by Deputy Manager, SSP, JSC-MA/Wayne Hale, was held August 2, 2005 at 1:00 p.m. Central Time (CT), Johnson Space Center (JSC), Building 30, Room 118. Member organizations supported at JSC and remote sites by video teleconference. Roster sheets for those that participated in this meeting are available. Following are highlights of the issues that were discussed.

**A. Introduction – MMT Chairman**

Mr. Hale gave a few introductory remarks, and reviewed the items to be covered in today's meeting.

**B. Flight Status – Mission Operations Directorate (MOD) Failure Summary**

JSC-DA/R. E. Castle summarized FD8 mission events, as follows:

- 1) Preparation for extravehicular activity (EVA)-3 – The un-berthing of External Stowage Platform (ESP)-2 has been completed.
- 2) Control Moment Gyroscope (CMG)-1 checkout is complete – CMG-3 is ready if needed.
- 3) Transfer status – International Space Station (ISS) is discussing an oxygen (O<sub>2</sub>) transfer.

Mr. Castle reviewed the detailed EVA-3 timeline. He stated that the Airlock (A/L) depressurization method is under review, and a decision will be made as to whether to use the port equalization valve or the vestibule depressurization valve. Overall, the mission is proceeding with the nominal timeline.

**C. ISS**

JSC-OA/Kirk Shireman reported that with CMG-1 up, all four CMGs are going now. There is still a gap issue with the Flex Hose Rotary Coupler (FHRC) multilayer insulation (MLI) blanket, but there will be no action taken at this time.

Mr. Shireman informed the MMT about the potential for additional motion introduced at the end of the Space Station Remote Manipulator System (SSRMS) during EVA-3 if the attitude control has to be handed over to the Russian Segment (RS). He explained the number of failures that are required to handover attitude control. JSC-EG4/Louis Nguyen presented charts that explained how the additional movement is created. He added that the motion of the foot restraint relative to the arm is approximately 1 inch. The ISS Program recommends enabling the Russian thrusters, and MOD agrees with this position. Mr. Hale agreed that an appropriate risk trade had been made and

understood that the crew member would not notice this movement.

#### **D. Mission Integration Status**

JSC-MO/Robert Galvez, STS-114 Flight Manager, in relating consumables transfer activity, reported that 1) Middeck has completed approximately 46% of resupply items to ISS; 2) 24 lbs of nitrogen (N<sub>2</sub>) have been transferred; and 3) the ISS Program would like to transfer around 50 lbs of O<sub>2</sub>, if possible.

Mr. Galvez stated that there was a Mission Evaluation Room (MER) action to assess the possibility of leaving as many Payload General Support Computer (PGSC) laptops onboard as possible. This was discussed, and Mr. Hale agreed with leaving as many computers as possible on the Station. He also agreed that as much O<sub>2</sub> as possible should be transferred.

#### **E. EVA**

JSC-XA/Stephen Doering reported on an issue with a broken wrist tether that was noticed in a review of EVA video. It is believed that the tether performed as designed, but inadvertent snagging of the wrist tether strap during the EVA could have induced loads beyond the 30-lb minimum breakaway rating. Mr. Doering stated that the gloves are still acceptable for use, and there is no reason to suspect any other tether loop issues. He also stated that nothing will be tethered to these loops during EVA-3.

Mr. Doering reported on tile impact testing performed on August 1, 2005. Unflown tile was tested for worst-case damage, and the damage incurred was minor. It was noted that coating damage could occur more quickly with flown tiles; however, the opinion was that incidental loads should be within the damage capability of the tile. The consensus was that it would take considerable effort to impact the tile enough to cause serious damage.

#### **F. Space Shuttle Safety and Mission Assurance (S&MA)**

JSC-MX/Don Totton reported S&MA has added the following four new anomalies to the Risk Matrix: A/L Aft 'B' hatch closure difficulties, EVA camera firmware, port lightweight (LW) tool storage assembly latch not turning, and degradation of A/L starboard equalization valve flow.

#### **G. Integrated Anomalies/Issues Summary**

JSC-MS/John Muratore presented the System Engineering and Integration (SE&I) Integrated Anomalies list, located on the MMT website at:

[http://sspweb.jsc.nasa.gov/webdata/mmtmeeting/flt/114/050802.1300\\_D8/12\\_Integrated\\_Issues\\_Tracking\\_Matrix.pdf](http://sspweb.jsc.nasa.gov/webdata/mmtmeeting/flt/114/050802.1300_D8/12_Integrated_Issues_Tracking_Matrix.pdf)

## **H. External Tank (ET) Launch Data Evaluation**

LMSSC-ET/Mike Quiggle reported on STS-114 ET Development Flight Instrumentation (DFI) performance, and stated that a preliminary review of STS-114 G-levels compared to design requirement G-levels indicated nominal post-flight data and no instabilities or erratic behavior of LO<sub>2</sub> cable trays. There were good correlations between these tests and the wind tunnel tests, and the team is comfortable with the data. The ET Thermal Protection System (TPS) post-flight performance was reviewed for the following locations:

Intertank/ Liquid Hydrogen (LH<sub>2</sub>) Tank Flange Closeout – Three divots were observed.

Bipod Closeout TPS – A portion of the –Y closeout is missing.

Acreage TPS – This included the observed bird strike. No damage was noted on the ET.

Ice/Frost Ramps – Three divots were observed.

LH<sub>2</sub> Protuberance Airload (PAL) Ramp – A 37-inch by 11-inch portion of the PAL ramp is missing.

Protuberances – Normal erosion was observed.

Mr. Hale stated that if the estimated foam loss mass is less than the Program's expected mass, then it is clearly an accepted risk. If the foam loss is greater than expected, it should be classified as an in-flight anomaly (IFA). The LH<sub>2</sub> PAL ramp foam loss is the biggest concern.

## **I. RCC On-Orbit Inspection Closeout**

Boeing/Mike Gordon and JSC-EV/Tim Fisher reported on the Reinforced Carbon-Carbon (RCC) on-orbit inspection closeout. They stated that the Leading Edge Structure Subsystem (LESS)/RCC Problem Resolution Team (PRT) had cleared four initial threats to the Wing Leading Edge (WLE) RCC. Several black spot indications have been reviewed, and no silicon carbide (SiC) damage to the substrate was detected. Only one Angle of Incidence event for the areas identified was determined to be corroborated. There is no technical concern regarding the remote possibility of undetected damage; however, there will be a post-mission follow-up action to change the future inspection procedure. Mr. Hale accepted closeout of this issue.

## **J. STS-114 Blanket Impact Assessment Status**

JSC-MV5/Justin Kerr stated that a blanket was damaged during launch, with the forward 7.7 inches being torn with batting exposed. The remaining 12.7 inches of blanket still has the outer mold line (OML) fabric attached, but some stitches are broken. A team is currently examining the thermal and structural implications. Mr. Kerr stated that according to available imagery, the OML fabric seems to have split into two separate pieces. Preliminary Debris Transport Analysis (DTA) has been conducted and indicates that if the pieces come off the Orbiter at Mach 6 or above, they will completely

clear the vehicle. The DTA indicated pieces could impact the vehicle at speeds below Mach 6. Assessments are being done to ensure clearance with an adequate margin, and the team is trying to evaluate critical kinetic energy for each function. The intent is to clear as many cases as possible. JSC-MV/Ed Mango stated that the team has forward work to determine what to do with the blanket. Mr. Kerr noted that forward work is planned to address the DTA, TPS, and structural damage assessment issues. Mr. Hale encouraged the team to take advantage of wind tunnel testing capabilities. Mr. Kerr will provide MOD with any photo requirements for EVA-3. Also needed is an evaluation of the potential effects to the rudder speed brake mechanism. Mr. Kerr will present the results of this forward work to the MMT tomorrow (August 3), so that a decision can be reached on the blanket and the possibility of a fourth EVA.

The MMT assigned Action 114-MMT-010 to MOD and EVA to assess the EVA options for potential advanced flexible reusable surface insulation (AFRSI) blanket repair. The action is due August 3, 2005.

#### **K. Management Decisions Summary**

No management decisions were made at today's MMT. Mr. Hale polled the MMT on whether EVA-3 should be delayed, and it was decided to continue with EVA-3 and FD9 as scheduled.

#### **L. Conclusion**

Mr. Hale indicated that the next MMT is scheduled for 1:00 p.m. CDT, Wednesday, August 3, 2005.

Detailed information on all assigned actions for this meeting can be found on the MMT Action log, located on the MMT web site at:

[http://sspweb.jsc.nasa.gov/webdata/mmtmeeting/flt/114/050802.1300\\_D8/Actionlog.pdf](http://sspweb.jsc.nasa.gov/webdata/mmtmeeting/flt/114/050802.1300_D8/Actionlog.pdf)

The MMT web site is available at <http://sspweb.jsc.nasa.gov/mmt/>.

The meeting adjourned at 4:05 p.m. CT.



**MMT: August 2, 2005**

**Minutes Prepared By:**

<u>Tamara C. Fowler</u>	<u>August 2, 2005</u>
Minutes Writer	Date

**Approvals:**

<u>Eddie King</u>	<u>August 2, 2005</u>
MMT Secretary	Date

<u>J.J. Conwell</u>	<u>August 2, 2005</u>
Customer Support Room (CSR) Duty Officer	Date

# MEETING ATTENDANCE ROSTER

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MEETING TITLE: STS-114 MMT Flight Day 08

LOCATION: JSC

DATE: 08/02/05

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Dobby Watkins	AG	30243

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Date

8-2-05

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Location

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LANGLEY

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